

FOURTEEN MILE ROAD BRIDGE
Fourteen Mile Road spanning the
St. Joseph River
Tekonsha vicinity
Calhoun County
Michigan

HAER No. MI-77

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13-TEKO.V
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PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
National Park Service
Northeast Region
Philadelphia Support Office
U.S. Custom House
200 Chestnut Street
Philadelphia, P.A. 19106

HISTORIC AMERICAN ENGINEERING RECORD

FOURTEEN MILE ROAD BRIDGE

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Location: Fourteen Mile Road, Spanning St. Joseph River
Tekonsha vicinity
Calhoun County, Michigan

UTM: 16.466148.6663771
Quad: Burlington, MI, 1:24,000

Date of Construction: 1906

Engineer: Unknown
Architect: Unknown

Present Owner: Calhoun County Road Commission
13300 Fifteen Mile Road
Marshall, MI 49068

Present Use: Vehicular traffic (closed, 1/87)

Significance: The bridge is part of Calhoun County's local roadway system which primarily serves existing agricultural, rural residential, and associated traffic. The bridge is a steel, riveted camelback, pony truss structure. The bridge reflects a type not common in Michigan in the twentieth century.

Project Information: An evaluation (1987) advised replacement of the bridge. To mitigate the adverse impact, the State Historic Preservation Officer stipulated documentation of design elements of the bridge. This documentation was undertaken to fulfill the above stipulation.

Gerald L. Adams
Westshore Engineering & Surveying, Inc.
Consultants to the Calhoun County Road Commission
2534 Black Creek Road
Muskegon, MI 49444

Summary Description of Bridge and Setting

This bridge carries Fourteen Mile Road over the St. Joseph River. The bridge is locally known as the Fourteen Mile Road Bridge. The bridge is located near the Village of Tekonsha, MI, on the common line of Sections 28 and 29, Tekonsha Township, Calhoun County, MI (T4S,R6W). This location is approximately 1.0 mile west of the Village of Tekonsha and 4.5 miles east of the Village of Burlington (MI). The bridge site is 0.5 miles south of Michigan State Highway M-60 and 1.2 miles west of Federal Highway I-69/US-27.

The bridge was originally constructed in 1906 as a public structure to permit the crossing of the St. Joseph River by farm vehicles and rural residential vehicles.

The Fourteen Mile Road Bridge is a steel, riveted camelback, pony truss bridge. The bridge has a total length of 102 feet and is 16.0 feet in width. The bridge is a single span structure. The approaches consist of compacted sand and gravel base and surface. The bridge has been closed since January of 1987 due to its deteriorated condition.

The area near the bridge site consists of agriculture and low density residential development. The nearest structures (2 single-family homes of recent construction) are approximately 100 feet distant. It has been determined by the State Historic Preservation Officer that removal of the bridge will not impact said structures.

Based on a detailed inspection of the bridge by a qualified Michigan Professional Engineer (Hatfield and Associates, Inc., Battle Creek, Michigan) completed during 1987, the following deficiencies were noted:

- | | |
|-----------------------------|---|
| a) <u>Super-structure:</u> | Very poor condition with extensive deterioration. All major components need replacement. |
| b) <u>Sub-structure:</u> | Poor condition with major cracks in abutments. Abutments reveal significant settlement with loss of backfill material and scour damage. |
| c) <u>Deck:</u> | Deck system in state of deterioration and unsuitable for continued use. Deck is one-lane. |
| d) <u>Bridge Railings:</u> | Poor condition due to rusting and fatigue. Design does not meet current safety standards. |
| e) <u>Paint:</u> | Paint coat very poor due to surface rust and general deterioration. |
| f) <u>Channel:</u> | Poor condition with lack of potential for maintenance. |
| g) <u>Operating Rating:</u> | None, bridge closed. Prior to closure--7 ton. Rating |

- refers to per axle load limit capability at time of rating (prior inventory).
- e) Inventory Rating: None, bridge closed. Bridge will not support vehicular loads. Rating refers to per axle load limit capability based on engineering assessment completed as part of the inspection referenced above (Hatfield and Associates, Inc., 1987).
- f) Safe Load Capacity: Bridge will not support vehicular loads. There is no safe load capacity based on the condition of the bridge.
- g) Structural Condition: Intolerable condition with continued closure recommended.
- h) Geometry: Intolerable condition with bridge not meeting acceptable standards. Roadway width is 16.0 feet. Design standard for this location is 30 feet and 11 inches.

Maintenance and Alternations (Bridge and Site)

Since original construction, no record of alterations has been maintained. Based on visual observation of the road bed, abutments, and approaches, it appears limited maintenance may have taken place to prevent total deterioration and provide for use. Since closure of the bridge (January, 1987), no maintenance has occurred.

Detail Pursuant To Those Involved With Bridge Design And Construction

The designer and contractor of the bridge are not known. The bridge contains no name plate or plaque. No bridge plans are available. (Source: Calhoun County Road Commission, Marshall, Michigan.)

Technology Used

The bridge was constructed using a riveted pony truss design. The trusses exhibit a "camelback" or "humped" appearance. No other aspects of the bridge pursuant to construction labor force, type of equipment, or construction tools are known to be significant.

Use of Structure

Prior to closure of the bridge in 1987, Fourteen Mile Road served primarily agricultural traffic with associated commercial vehicles. Secondary use included non-farm residential traffic, residential delivery vehicles, postal vehicles, school buses, emergency vehicles, and limited transient traffic.

Fourteen Mile Road served as a connecting link to Michigan State Highway M-60 and Federal Highway I-69/US-27. M-60 functions as a regional east/west arterial providing ready access to the Michigan cities of Jackson, Three Rivers, Cassopolis, and Niles. Interstate 69/US-27 serves as a limited access interstate highway linking the bridge area with the Michigan cities of Battle Creek, Marshall, and Coldwater.

Historical Significance

The bridge is listed on the Michigan Historic Bridge inventory as an early example of a rivetted camelback pony truss bridge. The bridge is significant due to the limited number of similarly designed structures currently existing within the State of Michigan. Based on information provided by the Michigan State Historic Preservation Officer, the bridge is a type not common to Michigan in the twentieth century.

Background and Contextual Information

Historically, the system of local roads within the State of Michigan was based on the use of land survey section lines for location and construction purposes. The results of this are evidenced throughout the state. One has only to examine local county roadway maps, particularly in rural locations, to observe that most public roads clearly follow section line boundaries. The lack of deviation from the above thus established a majority of the state's water crossing locations. Locational modifications to the use of section lines generally occurred only as a result of the presence of significant physical obstacles which demanded an alignment change. For instance, road builders faced with an extremely wide river crossing might seek a narrower passage.

The crossing of the St. Joseph River at sections 28 and 29, Tekonsha Township, did not present a barrier of significant magnitude. The physical character of the section line site was similar to the surrounding area. Consequently, the bridge was placed at its current location.

Significance of the Crossing

The crossing is particularly significant to local farming operations and nearby non-farm residents. Currently, one-way detours of approximately 3 miles are required pursuant to north/south movement. Annually, this results in significant loss of productive time, adds to vehicular and equipment wear, and promotes energy inefficiency.

In later years of use, the design and configuration of the existing bridge also prevented the safe movement of farm equipment as equipment size increased. The relative narrow width of the bridge (16.0 feet) made the safe and efficient movement of large combining equipment, plows, mowers, and the like very difficult. Such equipment was generally not in existence at the time of bridge construction.

At closure, daily traffic was estimated at 131 vehicles per day. If the bridge were to be reopened and improved to current State/Federal design standards, it is estimated counts would increase to 300 vehicles per day with approximately 10 percent trucks. Counts over the next twenty years are estimated to increase to 500 vehicles per day. The increase in traffic is due to areawide growth in residential development.

SOURCES OF INFORMATION/BIBLIOGRAPHY

A. Engineering drawings: No drawings or design plans of the bridge are known to exist. (Based on examination of records of the Calhoun County Road Commission, Calhoun County Clerk, and Tekonsha Township.)

B. Historic views: No historic views of the bridge are known to exist. (Based on an examination of records or contact with the Calhoun County Road Commission, Calhoun County Planning Commission, State of Michigan Historic Preservation Officer, Historical Society of Calhoun County, area property owners, and Tekonsha Township.)

C. Interviews:

Gordon F. Karns, P.E.
Calhoun County Highway Engineer
Calhoun County Road Commission
Marshall, MI

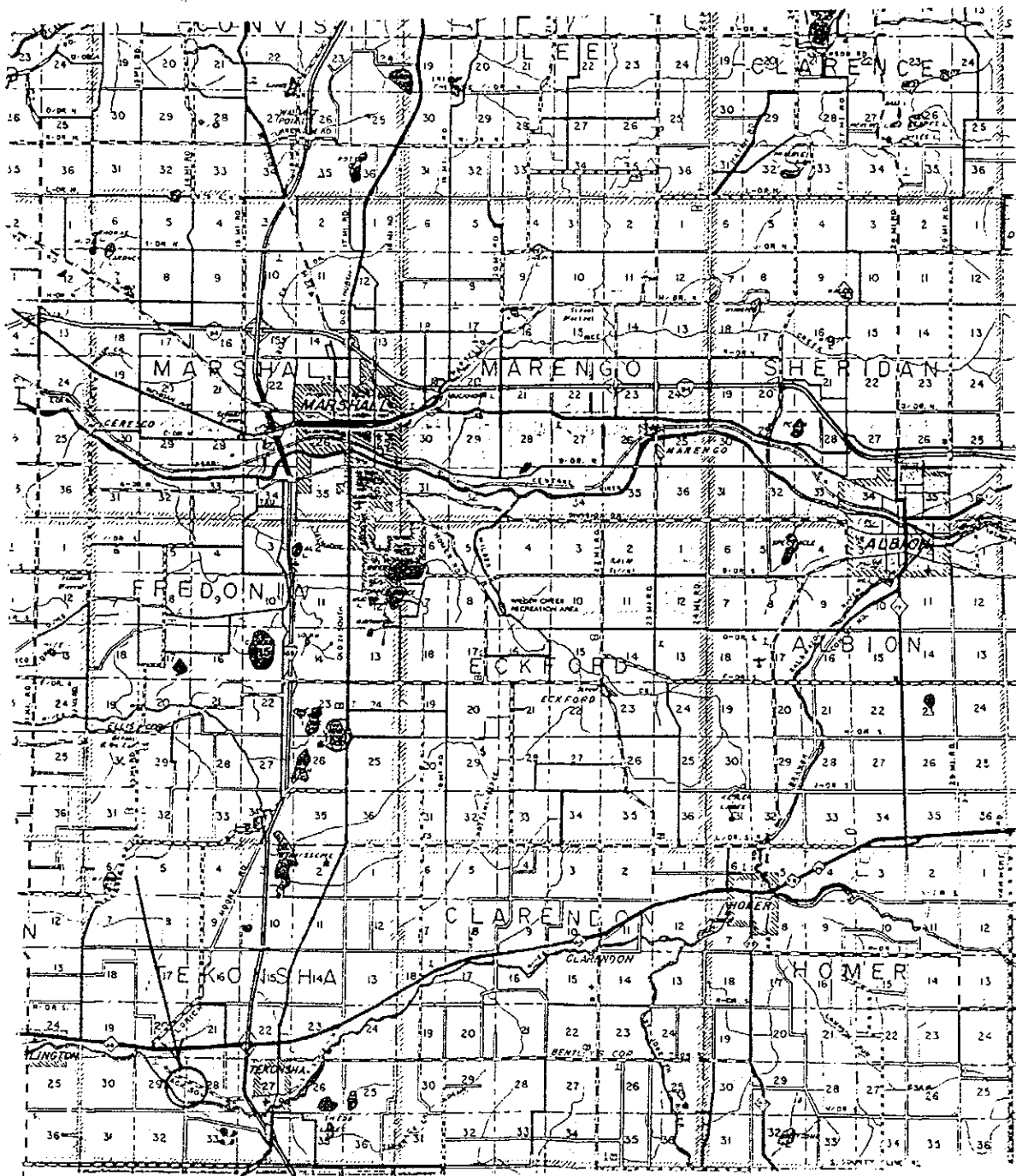
Interviews conducted during the period of October, 1990 to May, 1993.

D. Bibliography:

Environmental Assessment and Programmatic Section 4(f) Evaluation of the Fourteen Mile Road Bridge Over St. Joseph River. Calhoun County Road Commission in cooperation with the Michigan Department of Transportation. Marshall, MI, 1994. (Document on file at the offices of the Calhoun County Road Commission, 13300 Fifteen Mile Road, Marshall, MI 49068, and the Michigan Department of Transportation, Local Services Division, P.O. Box 30050, Lansing, MI 48909.)

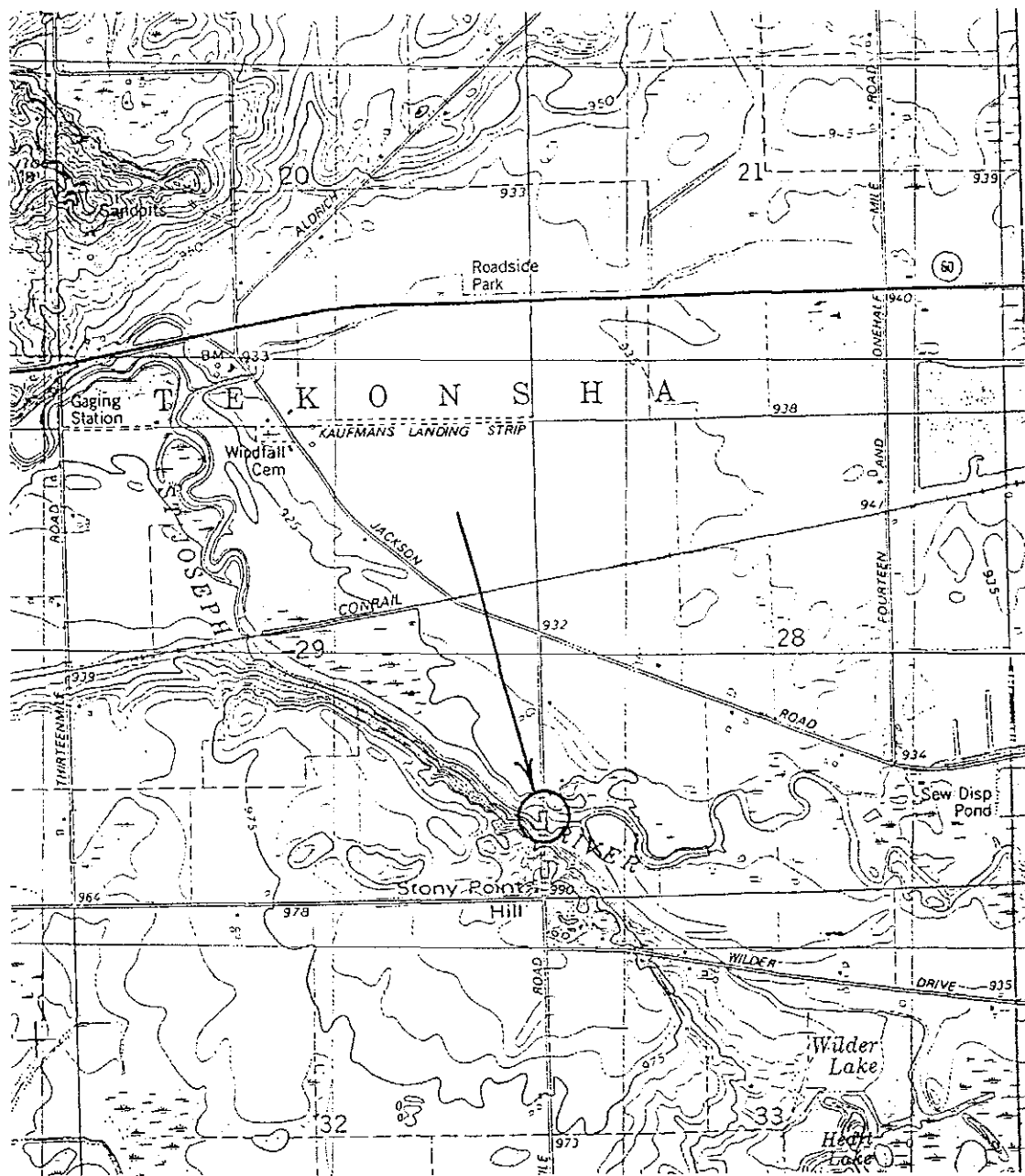
E. Likely sources not yet investigated: No additional sources of information are known. (Local sources investigated include the Calhoun County Road Commission, Historical Society of Calhoun County, Calhoun County Planning Commission, Calhoun County Clerk, and Tekonsha Township.)

F. Supplemental material: No supplemental material has been attached.



Regional Location Map
Fourteen Mile Road Bridge, Spanning St. Joseph River
Tekonsha Township (Tekonsha Village, MI, 49029-0128, vicinity)
Calhoun County
Michigan

Fourteen Mile Road Bridge
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Site Location Map
Fourteen Mile Road Bridge, Spanning St. Joseph River
Fourteen Mile Road
Section Lines 28 and 29
T4S,R6W
Tekonsha Township (Tekonsha Village, MI, 49029-0128, vicinity)
Calhoun County
Michigan